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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,501	03/18/2005	Johannes Marra	NL02 0870 US	4407

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EXAMINER	
CHOWDHURY, AFROZA Y	
ART UNIT	**PAPER NUMBER**
2609	

MAIL DATE	DELIVERY MODE
05/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/528,501	MARRA ET AL.	
	Examiner	Art Unit	
	Afroza Y. Chowdhury	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/18/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. One of the references in IDS is not considered since the translation is not provided.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "**various locations on the output surface of said light guide to sequentially and repeatedly illuminate selected areas of said screen in synchronism with the repetitive scanning of said screen**" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

There is not enough support for " scanning means" in claims 7 and 10.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim4, "**the scanning means comprise a flexible member juxtaposed with the output surface of the light guide, capable of being selectively attracted into local contact with said surface**" is not clear. What is a "flexible member"? How is it attracted into local contact with the surface?

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 7, and 10 are rejected under 35 U.S.C. 102(b) as being patented by Hiyama et al. (US Pub. 2002/0033909).

As to claim 1, Hiyama et al. discloses a display apparatus comprising an image-generating screen (page 1, [0010]) repetitively scanned (fig. 2) at a predetermined rate to display images,

and a backlight (fig. 1) for illuminating the screen, the backlight including:

at least one light source (fig. 1A(10), page 3, [0053], page 5, [0064]);

a light guide (fig. 1A(12), page 3, [0053], light-pipe) arranged to constrain light derived from said at least one source by total internal reflection (page 4, [0055]),

the light guide (fig. 1A(12), page 3, [0053], light-pipe) having an output surface with various locations from which light may be selectively coupled (fig. 1A);

and scanning means configured to selectively couple light (fig. 1A (211)) from said various locations on the output surface of said light guide to sequentially (fig. 2, page 6, [0074]) and repeatedly illuminate selected areas of said screen in synchronism with the repetitive scanning of said screen (page 6, [0079]).

As to claim 2, Hiyama et al. teaches a display apparatus configured to couple light sequentially (fig. 2, page 6, [0074]) from said various locations during continuous

activation of the at least one light source (fig. 1A(10), page 3, [0053], page 5, [0064]).

As to claim 3, Hiyama et al. discloses a display apparatus wherein the screen comprises a liquid crystal display screen (fig. 14, page 1, [0012]).

As to claims 7 and 10, Hiyama et al. teaches a display apparatus wherein the scanning means comprise a thin layer of a liquid crystal gel (page 3, [0053], PDLC (polymer dispersed liquid crystal layer) disposed substantially parallel to the output surface of the light guide (page 3, [0053]).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 4-6 and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. (US Pub. 2002/0033909) in view of Van Gorkom (US Patent 6628246).

As to claim 4, Hiyama et al. discloses a display apparatus including an image-generating screen and a backlight.

Hiyama et al. does not explicitly teach a scanning means comprise a moveable element.

Van Gorkom teaches a display device where the scanning means comprise a flexible member (fig. 2(3), 3A(3), col. 2, lines 65-66) against the light guide.

Therefore, it would have been obvious to one skill in the art at the time of invention was made to combine Van Gorkom's display device with the light illumination apparatus of Hiyama et al. to design a backlight where a moveable element juxtaposed with the output surface of the light guide so that it would move easily due to locally generating force (Van Gorkom, col. 3, lines 15-20).

As to claim 5, Van Gorkom teaches a display apparatus wherein said flexible member comprises a polymeric light-scattering foil (col.4, lines 2-9).

As to claim 6, Van Gorkom teaches a display apparatus wherein the scanning means comprises transparent electrical contacts (fig. 3A (5), col. 5, line 20-25) and the flexible member (fig. 2(3), col. 2, lines 65-66) is arranged to be moved relative to the output surface of the light guide electrostatically under the influence of dynamic voltage waveforms applied (fig. 4, lines 48-55) to said contacts.

As to claims 11 and 12, Van Gorkom discloses a display apparatus wherein the scanning means comprise electrodes disposed on opposing surfaces (fig. 2, 3A, 5) and the apparatus is arranged to supply said electrodes with dynamic waveforms (col. 5, line

20-25) which form an electrical field to selectively switch the scanning means between a substantially transparent non-scattering state and a scattering state.

As to claim 13, Hiyama et al. teaches a display apparatus wherein each of said various locations forms part of a different elongate backlighting area, said backlighting areas being arranged in a one dimensional array (fig. 1).

As to claim 14, it is obvious to make a display apparatus wherein each of said various locations forms part of a different substantially rectangular backlighting area, said backlighting areas being arranged in a two dimensional array (Hiyama et al., fig. 1).

As to claim 15, Van Gorkom teaches a display apparatus each said backlighting area corresponding to 20% or less of the total surface area of the said screen (col. 4, lines 20-21).

As to claim 16, Van Gorkom teaches a display apparatus each said backlighting area corresponding to 2% or more of the total surface area of the said screen (col. 4, lines 20-21).

As to claim 17, Hiyama et al. teaches a display apparatus wherein each said backlighting area corresponds in size to a plurality of pixels on said screen (page 1,

[0013]).

As to claim 18, Hiyama et al. discloses a display apparatus wherein said light guide (fig. 1A(12), page 3, [0053], light-pipe) further comprises an input surface disposed to receive said light, the input surface including a plurality of spaced-apart incoupling elements having respective sidewalls (fig. 3(17))) extending transversely of said input surface.

As to claim 19, Hiyama et al. teaches a display apparatus the backlight further comprising reflective means (fig. 1A, page 4, [0058]) disposed in spaces between said incoupling elements.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. (US Pub. 2002/0033909) in view of Van Gorkom (US Patent 6628246) and in further view of Fong (US Patent 6368682).

As to claim 8, Hiyama et al. (as modified by Van Gorkom) does not teach how the liquid crystal gel is prepared from a mixture of a nematic liquid crystal, a liquid crystal diacrylate monomer and a photoinitiator.

Fong discloses a display apparatus wherein said liquid crystal gel is prepared from a mixture of a nematic liquid crystal, a liquid crystal diacrylate monomer and a photoinitiator (col. 1, lines 41-46).

Therefore, it would have been obvious to one skill in the art at the time of invention was made to add Fong's teaching into the technique of Hiyama et al. (as modified by Van Gorkom) of preparing liquid crystal gel in order to make a backlight for a LCDs for various electronic devices.

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiyama et al. (US Pub. 2002/0033909) in view of Van Gorkom (US Patent 6628246) and Fong (US Patent 6368682) and in further view of Yang et al. (US Patent 6151089).

As to claim 9, Hiyama et al. (as modified by Van Gorkom and Fong) does not teach a nematic liquid crystal mixture with negative dielectric anisotropy.

Yang et al. teaches a reflection type display device with nematic liquid crystal mixture that exhibits negative dielectric anisotropy (col. 5, lines 47-52).

Therefore, it would have been obvious to one skill in the art at the time of invention was made to combine the teachings of Yang et al. with the technique of Hiyama et al. (as modified by Van Gorkom and Fong) of making light illumination apparatus to use a nematic liquid crystal mixture with negative dielectric anisotropy in order to get high dynamic light scattering (Beguin et al. US Patent 4173545).

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Afroza Y. Chowdhury whose telephone number is 571-270-1543. The examiner can normally be reached on 7:30-5:00 EST, 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC 4/27/2007

AMARE MENGISTU
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